CORRECTION TO: SOME FORMULAS FOR THE ENERGY FUNCTIONAL OF A MARKOV PROCESS

(Seminar on Stochastic Processes, 1988)

by

P. J. FITZSIMMONS and R. K. GETOOR

H. Kaspi has pointed out an error in the proof of Theorem 4.1: in line 3 on page 180 the inclusion $E_m \cap \{P_M u < \infty\} \subset \{u < \infty\}^r$ is *clearly* false. She has also provided a correct argument which we reproduce here. As noted in the first part of the paragraph preceding (4.19), $L(\xi, u) = \infty$ whenever $\xi(u = \infty) > 0$; similarly $L^M(\tilde{\xi}, \tilde{u}) = \infty$ whenever $\tilde{\xi}(\tilde{u} = \infty) > 0$. Thus to complete the proof of (4.2) it suffices to show that $\tilde{\xi}(\tilde{u} = \infty) > 0$ if $\xi(u = \infty) > 0$ and $L(\xi, P_M u) < \infty$. In this case $\xi(P_M u = \infty) = 0$, so

$$0 < \xi(u = \infty) = \xi(E_M \cap \{P_M u < \infty, u = \infty\}),$$

since $P_M u = u$ on $E \setminus E_M$. Also, $L(R_M \xi, u) = L(\xi, P_M u) < \infty$, and therefore $R_M \xi(u = \infty) = 0$. It follows that $\tilde{\xi}(E_M \cap \{P_M u < \infty, u = \infty\}) > 0$. But $\tilde{u} = u - P_M u$ on $E_M \cap \{P_M u < \infty\}$, hence $\tilde{\xi}(\tilde{u} = \infty) > 0$ as desired.

Department of Mathematics, C-012
University of California, San Diego
La Jolla, California 92093